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Mass-spectral Studies of the Chemical Nature of the Lachrymatory Factor Formed Enzymically from S-(1-propenyl)-cysteine Sulfoxide Isolated from Onion *(Allium cepa)*

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Mass-spectral studies have given some evidence that propenylsulfenic acid is the lachrymatory factor in onion[1]. When a dialyzed enzyme preparation from onion was added to a dilute solution of S-(1-propenyl)-cysteine sulfoxide, a strong peak of mass 90 was found already after a reaction time of 1 min. After a reaction time of 1 h, the peak was already lower and the peak of mass 58 corresponding to propionaldehyde had become stronger. After 2 h the peak of mass 90 had almost disappeared.

A peak of mass 98 was also found after the reaction time of 1 h. 2-Methyl-2-pentenal (mol.wt. 98) is believed to cause this peak. This unsaturated aldehyde was earlier isolated in this laboratory as a volatile product of an enzymic reaction in crushed onion and was taken to be derived from propionaldehyde[2,3].

According to the results obtained so far, the lachrymatory factor has a short life in water solution at room temperature. If the lachrymatory factor is really propenylsulfenic acid, this would be the first aliphatic sulfenic acid whose existence has been proved.

A more detailed paper will be published in *Acta Chemica Scandinavica*.
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References:

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3. Spåre, C.-G. and Virtanen, A. I. *Acta Chem. Scand.* **15** (1961) 1280.